

REMARKS

In view of the above amendments and following remarks, reconsideration of this application is respectfully requested. Claims 24-43 are currently pending. Claim 43 has been amended as discussed in greater detail below.

As an initial matter, Applicants thank the Examiner for withdrawing the prior grounds of rejection based on U.S. Patent No. 6,028,028 to Nitta and U.S. Patent No. 5,919,552 to Malhotra. The Examiner has, however, now rejected the pending claims in view of the following newly cited references; namely, U.S. Patent No. 6,140,412 to Saitoh et al. ("Saitoh"), U.S. Patent No. 6,596,805 to Nigam et al. ("Nigam"), and U.S. Patent No. 6,677,006 to Otani et al. ("Otani").

However, before discussing the new prior art rejections, Applicants wish to address the Examiner's rejection of claim 43 under 35 U.S.C. §112, second paragraph, as indefinite. In particular, the Examiner is of the opinion that that this claim "does not make sense" in that the dimensions that are suitable for printing "to produce an architectural or construction drawing" are not understood. To obviate this ground of rejection, Applicants have amended claim 43 by omission of the phrase "suitable for printing thereon using a photocopier or laser printer so as to produce". Thus, claim 43 now recites that the weatherproof sheet has dimensions of an architectural or construction drawing. While the Examiner correctly notes that the specification does not specifically define such dimensions, suitable ranges for the same are well understood by one skilled in the printing industry, as well as the architectural and/or construction industry. Accordingly, Applicants submit that claim 43, as amended above, is sufficiently definite, and request that this ground of rejection be withdrawn.

Turning now to the prior art rejections, the Examiner has rejected claims 24-27, 30, 33-37 and 39-43 under 35 U.S.C. §103(a) as obvious over Saitoh in view of Nigam. Applicants respectfully disagree.

Claim 24 (as well as claims 25-27, 30, 33-37 and 39-43) recites a weatherproof sheet suitable for use in a photocopier or laser printer. As the Examiner is undoubtedly aware, neither photocopiers nor laser printers employ water-based inks.

In the case of laser printing, the drum is given a total positive charge by a charge corona wire, and as the drum revolves the printer shines a tiny laser beam across the surface to discharge certain points. In this way, the laser "draws" the letters and images to be printed as a pattern of electrical charges. After the pattern is set, the printer coats the drum with positively charged toner (*i.e.*, a fine, black powder). Since it has a positive charge, the toner clings to the negative discharged areas of the drum, but not to the positively charged "background." With the powder pattern affixed, the drum rolls over a sheet of paper, which is moving along a belt below. Before the paper rolls under the drum, it is given a negative charge by the transfer corona wire (*i.e.*, a charged roller). This charge is stronger than the negative charge of the electrostatic image, so the paper can pull the toner powder away. Since it is moving at the same speed as the drum, the paper picks up the image pattern exactly. Finally, the printer passes the paper through the fuser (*i.e.*, a pair of heated rollers). As the paper passes through these rollers, the loose toner powder melts, fusing with the fibers in the paper. The fuser rolls the paper to the output tray, and you have your finished page. The fuser also heats up the paper itself, which is why pages are always hot when they come out of a laser printer.

A photocopier works in a similar manner as the laser printer, but uses a bright light to selectively charge the drum (as opposed to a laser). A toner is attracted to those areas of the drum that have been selectively charged, and then a positively charged sheet of paper is passes over the surface of the drum, attracting the toner away from the drum. The paper is then heated and pressed to fuse the image formed by the toner to the paper's surface.¹

In sharp contrast, Saitoh is directed to application of water-based inks to ink jet printing paper. If one attempted to apply such inks to the weatherproof sheet of claim 24, it would totally fail since the inventive sheet does not absorb water – that is, it is water repellant. In the context of Saitoh, an attempt was made to improve the water resistance of images and characters printed on printing paper. The very reason for this effort is the fact that the ink of Saitoh is a water-based product, which is absorbed by the printing paper upon application via an

¹ It should be noted that both photocopiers and laser printers fuse toner to the printing sheet by a heating step. This heating step results in significant fouling when traditional weatherproof sheets are printed by such devices, typically by melting the very surface material applied to the sheet in order to render it weatherproof.

ink jet printer but which will smear or “blotch” upon subsequent contact with water. In this effort, the ink jet paper itself is treated with a “water-proofing agent” that comprises an aqueous cationic polyurethane resin solution. As illustrated in Example 11 of Saitoh, particularly at col. 12, beginning at line 20, ink jet printer paper was prepared utilizing the waterproofing treatment disclosed in that patent, followed by application of various colored inks using an Epson ink jet printer. At col. 13 of Saitoh, an “ink blotch” test was performed, which purports that the treated paper showed improved water resistance.

However, it must be recognized that the ink jet printer paper of Saitoh must be water absorbent, or otherwise the ink can not adhere to the paper – that is, be absorbed by the paper. Again, and in contrast to the printing paper of Saitoh, claim 24 recites, *inter alia*, a weatherproof sheet comprising a cellulosic substrate and a durable weatherproofing coating layer. This “durable weatherproofing coating layer” is water repellant and thus totally unacceptable for use in the context of Saitoh. Similarly, the water resistant sheet of Saitoh is entirely unacceptable for use in the context of the present invention – that is, it does not constitute a weatherproof sheet as that term is used and defined in the present invention (*see, e.g.*, specification at page 8, line 26 through page 9, line 8).

At page 3 of the Office Action, the Examiner appears to largely dismiss the difference in the ink jet printing paper of Saitoh and the weatherproof sheet of the present application, stating that the ability of the recited weatherproof sheet to be printed by laser printing or photocopying “is not germane.” Rather, the Examiner is of the opinion that “an element that is ‘being able to’ perform a function is not a positive limitation but only requires the ability to so perform” (*see* Office Action at page 3, 4 lines from the bottom of the page). Applicants respectfully disagree with the Examiner’s position.

The weatherproof sheet of claim 24 specifically recites “a durable weatherproof coating”, which is a positive limitation of that claim. As used in the present application, “weatherproof coating” means, *inter alia*, a water repellant coating (*see*, specification at page 9, line 4). Accordingly, claim 24 has a specific and positive limitation sufficient to distinguish over the ink jet printer paper of Saitoh, which paper may have improved water resistance but clearly is

not water repellant (if it were truly repellant, it would be entirely unsuitable as ink jet printing paper).

Of course, it should also be noted that paper can be made water repellant by a variety of techniques. For example, simply coating a sheet of paper with a thick layer of wax will result in a weatherproof sheet. However, such a wax-coated sheet is unsuitable for photocopier or laser printing, and is not what is disclosed and claimed in the present application.² Rather, the weatherproof sheet recited in claim 24 (as well as all of the dependent claims) is suitable for use in a photocopier or laser printer without fouling the operation of such devices (see specification at page 7, line 11). This ability is achieved as a result of the coating layer as recited in claim 1 and is, in the opinion of Applicants, germane to patentability of the claimed subject matter. Indeed, a significant and beneficial property of the claimed weatherproof sheet is its suitability for photocopy and/or laser printing, while also being sufficiently water repellant to retain its utility as a surface for legibly bearing printed images.

In summary, Saitoh does not teach a weatherproof sheet comprising a cellulosic substrate having a durable weatherproof coating layer as that term is used and defined in the pending application. Rather, the very fact that Saitoh is an ink jet printing paper requires it to be water absorbing – if this were not the case, you could not ink jet print with the inks as disclosed in that patent. Furthermore, Saitoh does not suggest or motivate one to employ such a weatherproof coating and, in fact, teaches away from the same since such a coating would render the ink jet printing paper of Saitoh inoperative for its intended purpose – that is, to absorb the aqueous-based ink applied thereto.

The addition of Nigam does not cure the above deficiencies of Saitoh. In particular, Nigam is relied upon by the Examiner for disclosing “an aqueous fast-dryable resin composition” that includes styrene acrylic resin and polyethylene wax (4/5/04 Office Action at page 4, first paragraph). Application of such a resin to the ink jet printing paper of Saitoh, however, still yields a product that fails to possess all the elements of the pending claims;

² As discussed previously, both photocopiers and laser printers fuse toner to the printing sheet by a heating step. Simply coating a printer sheet with wax, and then running the same through a photocopier or laser printer, would result in significant fouling (if not worse).

namely, a weatherproof sheet comprising a cellulosic substrate having a durable weatherproof coating layer. The Examiner is not suggesting that the fast-drying resin of Nigam serves as the weatherproof coating of the ink jet printer paper of Saitoh (which it does not), or that the resin of Nigam would not be absorbed by the ink jet printer paper of Saitoh (which it would).

Accordingly, Applicants respectfully submit that Nigam is insufficient to establish a *prima facie* showing of obviousness in combination with Saitoh. Applicants also submit that the same is true for Otani.

Like Saitoh, Otani is also directed to ink jet printer papers, but wherein the paper incorporates "an ink-receiving layer" which, in turn, comprises a lower light resistance-imparting layer and an upper coloration layer. As explained at col. 3, lines 13-15 of Otani, "[t]he main function of the present light resistance-imparting layer consists in absorbing and fixing a vehicle of ink passing through the coloration layer." As is plainly evident by this teaching, the ink is absorbed by the paper, and then "fixed" by the chemicals within the paper. Again, this is entirely different from the weatherproof sheet disclosed and claimed in the present application.

In summary, Applicants submit that Saitoh taken together with Otani, or further taken together with Nigam, does not teach or suggest the claimed weatherproof sheet of the pending application.

Accordingly, in view of the above amendments and remarks, Applicants respectfully submit that claims 24-43 are patentable over the cited references, and request that these claims be passed to allowance. A good faith effort has been made to place this application in condition for allowance. However, should any further issue require attention prior to allowance, the Examiner is requested to contact the undersigned at (206) 622-4900 to resolve the same.

Respectfully submitted,

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